

CLAIMS

What is claimed is:

- 1 1. A method of displaying one or more periodically updated channels of electronic
2 information received over a network from a content server, the method comprising the
3 computer-implemented steps of:
4 receiving and storing at the client, channel selection information defining a subset of
5 channels that are selected from among a plurality of available content
6 channels;
7 periodically retrieving updated channel content for the subset of channels from a
8 content server across a public network, without communicating the channel
9 selection information across the network;
10 generating one or more electronic documents that contain the updated channel
11 content;
12 displaying the one or more electronic documents.
- 1 2. A method as recited in Claim 1, further comprising the steps of creating and storing at
2 the client, virtual space organization information defining an organization of content
3 for the subset of channels within a virtual display space, and wherein the step of
4 generating one or more electronic documents comprises the step of generating one or
5 more electronic documents that contain the updated channel content based on the
6 virtual space organization information.
- 1 3. A method as recited in Claim 2, wherein the step of periodically retrieving updated
2 channel content further comprises the steps of:
3 receiving an update specification for one channel among the subset of selected
4 channels;
5 identifying an update method and time value within the update specification;
6 in accordance with the update specification, issuing a request for updated content data
7 created after the time value, using the update method.

- 1 4. A method as recited in Claim 1, further comprising the steps of receiving information
2 defining a plurality of rendering contexts, wherein each of the rendering contexts is
3 associated with one of the selected channels, and wherein the step of generating one
4 or more electronic documents comprises the step of rendering the electronic
5 documents using the rendering context that is associated with one of the selected
6 channels from which the updated channel content was obtained.
- 1 5. A method as recited in Claim 4, wherein each rendering context comprises a style
2 sheet, template, script, helper reference, or applet.
- 1 6. A method as recited in Claim 4, wherein the rendering context comprises a Cascading
2 Style Sheet document, the updated channel content comprises HTML data, and
3 wherein the generating step comprises combining the rendering context with the
4 updated channel content to result in creating and storing an HTML page that is
5 capable of display by a browser.
- 1 7. A method as recited in Claim 4, wherein the rendering context comprises a script, and
2 wherein the generating step comprises applying the updated channel content to the
3 script as input, executing the script, and receiving output from the script that is
4 capable of display by a browser.
- 1 8. A method as recited in Claim 7, wherein the steps of receiving, retrieving, generating,
2 and displaying are carried out by a personal server that is executed at the client, and
3 wherein the script is executed by an embedded processor in the personal server.
- 1 9. A method as recited in Claim 4, wherein the rendering context comprises a reference
2 to a program that is stored at the client, and wherein the generating step comprises
3 executing the program using the updated channel content as input and receiving
4 output from the program that is capable of display by a browser.

- 1 10. A method as recited in Claim 4, wherein the rendering context comprises an applet,
2 and wherein the generating step comprises executing the applet using the updated
3 channel content as input and displaying programmatic output from the applet using a
4 browser.
- 1 11. A method as recited in Claim 1, further comprising the steps of:
2 identifying whether the updated channel content contains an identification of an
3 embedded channel;
4 requesting second updated channel content for the embedded channel.
- 1 12. A method as recited in Claim 1, wherein the step of generating one or more electronic
2 documents further comprises the steps of:
3 receiving the updated channel content, a virtual space specification, and a page
4 organization specification;
5 replacing one or more tokens in the updated channel content with other content
6 information;
7 iterating the replacing step over all updated channel content for all channels that are
8 identified in the channel selection information.
- 1 13. A method as recited in Claim 1, wherein the step of generating one or more electronic
2 documents further comprises the steps of
3 receiving the updated channel content, a virtual space specification, and a page
4 organization specification;
5 receiving information defining a plurality of rendering contexts, wherein each of the
6 rendering contexts is associated with one of the selected channels;
7 replacing one or more tokens in the updated channel content with other content
8 information;
9 iterating the replacing step over all updated channel content for all channels that are
10 identified in the second information;

11 creating one or more static content elements in an electronic document based on a
12 rendering context that is associated with one of the selected channels from
13 which the updated channel content was obtained.

1 14. A method as recited in Claim 1, wherein the steps of receiving, storing, retrieving,
2 generating, and displaying are carried out by a personal server that executes at the
3 client.

1 15. A method as recited in Claim 1, further comprising the step of generating and
2 displaying a user interface display that includes a list of available channels, wherein
3 the list of available channels is created based on issuing a query to a channel database
4 that is stored in association with a personal server executed at the client that carries
5 out the generating and displaying steps.

1 16. A method as recited in Claim 1, further comprising the step of generating and
2 displaying a user interface display that includes a list of available channels, wherein
3 the list of available channels is created based on issuing a query to a channel database
4 that is stored in association with a personal server executed at the client that carries
5 out the generating and displaying steps, and based on a user-specific channel topology
6 that is retrieved from the channel database.

1 17. A method as recited in Claim 1, further comprising the steps of rescheduling the
2 retrieving step when the updated channel content cannot be retrieved immediately.

1 18. A method as recited in Claim 1, wherein displaying the one or more electronic
2 documents comprises the steps of delivering the electronic documents from a personal
3 server executed in the client to a browser executed in the client over a TCP/IP
4 loopback interface of the client.

- 1 19. A method as recited in Claim 1, wherein displaying the one or more electronic
2 documents comprises the steps of:
3 providing a Web server and a browser in association with the client;
4 loading one or more virtual display spaces from a personal server that is provided in
5 the client;
6 generating a view of the one or more virtual display spaces by using the browser to
7 request the one or more virtual display spaces from the Web server over a
8 loopback interface of the client.
- 1 20. A method as recited in Claim 19, wherein the step of generating a view includes the
2 step of directing the browser to display information located at a hostname that is
3 associated with the loopback interface of the client.
- 1 21. A method as recited in Claim 19, further comprising the steps of:
2 binding the Web server of the client to a pre-defined port that is associated with the
3 loopback interface of the client;
4 placing the Web server in a listening mode;
5 using the browser, issuing a display request to a hostname that is associated with the
6 loopback interface.
- 1 22. A method as recited in Claim 19, further comprising the steps of:
2 examining an IP address of the request;
3 determining whether requests from the IP address are permitted to view the virtual
4 display space, based on a stored mapping of IP addresses to identifiers of
5 virtual display spaces;
6 generating a view of the electronic documents from virtual display space only when
7 requests from the IP address are permitted to view the virtual display space.

- 1 23. A method as recited in Claim 19, further comprising the steps of:
2 rendering the requested one or more electronic documents from the loaded virtual
3 display space using a Web page synthesizer that is provided in the personal
4 server;
.5 providing the rendered one or more electronic documents to the Web server;
6 serving the rendered one or more electronic documents from the Web server to the
7 browser over the loopback interface.
- 1 24. A method as recited in Claim 19, wherein the embedded Web server is a proxy server
2 that binds to an arbitrary port.
- 1 25. A method of displaying one or more periodically updated channels of electronic
2 information received over a network from a content server, the method comprising the
3 computer-implemented steps of:
4 selecting a subset of channels that are selected from among a plurality of available
5 content channels;
6 periodically retrieving and aggregating updated channel content for the subset of
7 channels from a content server across a public network, without
8 communicating the channel selection information across the network;
9 organizing a virtual display space for receiving the updated channel content;
10 generating one or more electronic documents that contain the updated channel
11 content;
12 presenting the one or more electronic documents.

- 1 26. A computer-readable medium carrying one or more sequences of instructions for
2 displaying one or more periodically updated channels of electronic information
3 received over a network from a content server, which instructions, when executed by
4 one or more processors, cause the one or more processors to carry out the steps of:
5 receiving and storing at the client, channel selection information defining a subset of
6 channels that are selected from among a plurality of available content
7 channels;
8 periodically retrieving updated channel content for the subset of channels from a
9 content server across a public network, without communicating the channel
10 selection information across the network;
11 generating one or more electronic documents that contain the updated channel
12 content;
13 displaying the one or more electronic documents.
- 1 27. An apparatus for displaying one or more periodically updated channels of electronic
2 information received over a network from a content server, comprising:
3 means for receiving and storing at the client, channel selection information defining a
4 subset of channels that are selected from among a plurality of available
5 content channels;
6 means for periodically retrieving updated channel content for the subset of channels
7 from a content server across a public network, without communicating the
8 channel selection information across the network;
9 means for generating one or more electronic documents that contain the updated
10 channel content;
11 means for displaying the one or more electronic documents.
- 1 28. An apparatus for displaying one or more periodically updated channels of electronic
2 information received over a network from a content server, comprising:
3 a network interface that is coupled to the data network for receiving one or more
4 packet flows therefrom;

5 a processor;
6 one or more stored sequences of instructions which, when executed by the processor,
7 cause the processor to carry out the steps of:
8 receiving and storing at the client, channel selection information defining a
9 subset of channels that are selected from among a plurality of available
10 content channels;
11 periodically retrieving updated channel content for the subset of channels from
12 a content server across a public network, without communicating the
13 channel selection information across the network;
14 generating one or more electronic documents that contain the updated channel
15 content;
16 displaying the one or more electronic documents.

- 1 29. A personal server capable of displaying one or more periodically updated channels of
2 electronic information received over a network from a content server, comprising:
3 a channel manager configured to receive and store, in a channel database of the
4 personal server, channel selection information defining a subset of channels
5 that are selected from among a plurality of available content channels, and to
6 periodically retrieve updated channel content for the subset of channels from a
7 content server across a public network, without communicating the channel
8 selection information across the network;
9 a page synthesizer configured to generate one or more electronic documents that
10 contain the updated channel content and to provide the one or more electronic
11 documents to a browser for display.
- 1 30. A personal server as recited in Claim 29, further comprising:
2 a virtual space designer configured to receive and store virtual space organization
3 information defining an organization of content for the subset of channels
4 within a virtual display space;

5 a virtual space manager configured to generate one or more electronic documents that
6 contain the updated channel content based on the virtual space organization
7 information in coordination with the page synthesizer.